

## Antibiotic resistance profiling of Uropathogenic Enterobacteriaceae, Casablanca, Morocco



Aniba Rafik<sup>1\*</sup>, Barguigua Abouddihaj<sup>1</sup>, Dihmane Asmaa<sup>1</sup>, Nayme Kaotar<sup>2</sup>, Timinouni Mohammed<sup>2</sup>.

<sup>1</sup> Laboratory of Biotechnology and Sustainable Development of Natural Resources, Polydisciplinary Faculty, Sultan Moulay Slimane University, Beni Mellal, Morocco.

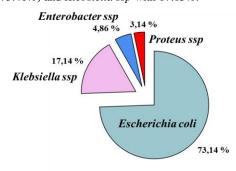
<sup>2</sup> Molecular Bacteriology Laboratory, Institut Pasteur de Maroc, Casablanca, Morocco.

**Introduction:** the urinary tract infection is a pathology frequents as well in community as at the hospital. In last years, there has been increased the incidence of antibiotic resistance in Uropathogenic Enterobacteriaceae. This development explains the need for periodic regional surveillance of this resistance to antibiotics, which poses a real problem of public health, because it affects several molecules ranging from  $\beta$ -lactam to quinolones.

**Objective:** the aims of this study is to determine the profile of antibiotic resistance of Uropathogenic Enterobacteriaceae isolated from medical analysis laboratories in Casablanca, Morocco.

Materials and methods: This is a prospective study that was conducted on patients who visited medical analysis laboratories in Casablanca city, for urinalysis test from 01 January 2017 to 30 December 2018 (a two full years). The culture was performed according to the usual techniques, and the antibiogram was done according to the recommendations of the Antibiogram Committee of the French Society of Microbiology. The statistical analysis was performed using Microsoft Excel (Microsoft 2016).

**Results:** During our study, we reported 18% of urinary tract infections, Sex ratio F/M was 1.79. In addition, Enterobacteriaceae were the most common germs. Of all the strains isolated, we noted a predominance of *Escherichia coli* with 75.41%) and *Klebsiella ssp* with 17.05%.



In the course of this study period, we observed high rates of resistance to the main classes of antibiotics, and an overall increase between 2017 and 2018 in this resistance to the majority of  $\beta$ -lactam antibiotics, quinolones and aminoglycosides for almost all species of Uropathogenic Enterobacteriaceae.

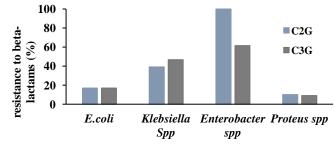
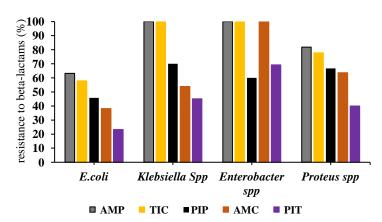
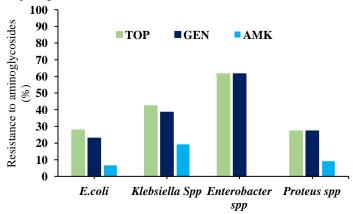


Figure 1: Beta-lactam (cephalosporin) resistance profiling of uropathogenic isolates (%)

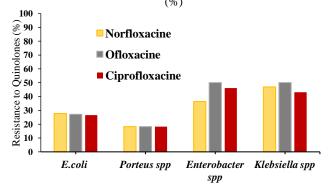


**Figure 2:** Beta-lactam (penicillin) resistance profile, of uropathogenic isolates (%)

However, amikacin was the most active molecule against the Uropathogenic Enterobacteriaceae strains isolates.



**Figure 3**: Aminoglycosides resistance profiling of Uropathogenic isolates



**Figure 4**: Quinolone resistance profiling of Uropathogenic isolates (%).

**Conclusion:** The development of resistance of Uropathogenic Enterobacteriaceae to antibiotics is a worrying phenomenon that exposes us to difficulties in the therapeutic management of infections. The current control of antimicrobial resistance is a real emergency and requires the involvement of public awareness before government instructions.

Better control in terms of strict compliance with hygiene measures, isolation of carriers, the reasoned use of antibiotics and defining therapeutic and prophylactic strategies adapted to local epidemiology are the key actions to slow down their emergence and dissemination.